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AN2NJ-A

ANALYZER, NETWORK

**1. GENERAL.** This procurement requires a swept-frequency reflectometer capable of characterizing faults in coaxial and waveguide transmission lines.

**2. CLASSIFICATION.** The equipment shall be Type II, Class 5, Style EP, and Color R for Navy applications in accordance with MIL-T-28800.

**3. OPERATIONAL REQUIREMENTS.** The equipment shall be capable of characterizing transmission lines with a single measurement as specified below. Hardcopy printouts of distance-to-fault with associated line loss, and return loss and VSWR vs. frequency, shall be provided.

**3.1 Frequency range.** The frequency range shall be 2 MHz or less to at least 18 GHz.

**3.2 Impedance.** The equipment shall be designed for use with 50 ohm systems.

**3.3 VSWR accuracy.** The equipment shall have an accuracy of 5% or better for an indicated VSWR of 1.1 to 1.99. A VSWR of 2 or higher shall have an accuracy of indication of 10% or better.

**3.4 Sweep-rate.** The sweep rate for line characterization shall be 25 ms nominal.

**3.5 Sweep-increments.** The equipment shall be provided with sweep increments of 5% or less of the specified frequency range.

**3.6 Foreign-signal-rejection.** A means shall be provided wherein harmonics and foreign signals that are within 10% of the operating frequency, and have an amplitude of 17 dBm or less for distance-to-fault measurements and 0 dBm or less for VSWR vs. frequency measurements, are rejected from the characterization process.

**3.7 Distance-to-fault-and-line-loss-mode.** A mode shall be provided where the equipment will measure and indicate the distance to each fault in a transmission line and the return loss and VSWR associated with each fault.

**3.7.1 Dynamic-range.** The rf output level shall be a nominal 0 dBm. An 80 dB dynamic range shall be provided for fault characterization.

**3.7.2 Location-accuracy.** The distance-to-fault accuracy shall be the greater of  $\pm 1.5$  ft or 1%.

**3.7.3 Overload-indication.** When the input to the reflectometer exceeds 17 dBm, the equipment shall provide the operator with an overload indication. The maximum input without damage shall be at least 30 dBm.

**3.8 Return-loss-and-VSWR-vs.-frequency-mode.** A mode shall be provided where the equipment will measure and indicate return loss and VSWR vs. frequency.

**3.8.1 Dynamic-range.** The equipment shall be provided with 30 dB or greater dynamic range.

**4. GENERAL REQUIREMENTS.**

**4.1 Power source.** The equipment shall be powered in accordance with the nominal power requirements on MIL-T-28800 except operation from 400 Hz is not required. The maximum power required for

operation shall not exceed 75W.

**4.2 Weight.** The weight of the equipment shall not exceed 43.2 kg (95 lb).

**4.3 Dimensions.** The size of the equipment shall be consistent with current commercial capabilities and shall not exceed the maximum dimensions for shipboard applications specified in MIL-T-28800.

**4.4 Lithium batteries.** Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

**4.5 Calibration interval.** The calibration interval shall be 12 months minimum. The equipment model shall be within all accuracy requirements specified herein, with a 72% or greater confidence factor following a calibration interval of 12 months.

**4.6 Transit case.** The Style P transit case shall provide protection for all components of the reflectometer.